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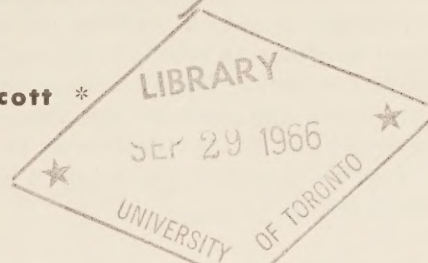
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Canadian Atlantic Sharks

By S. N. Tibbo and W. B. Scott *



FEW fishes, indeed few animals, have attracted and held man's interest so thoroughly as have the sharks. Their world-wide distribution, large size and voracious feeding habits make them one of nature's most effective predators. However, perhaps their greatest fascination stems from the fact that they are one of the few animals that launch unprovoked attacks on man himself.

About 17 species of sharks are known to occur in waters off the Atlantic coast of Canada. Not all species occur throughout the year, but like the tunas and the swordfish, they move into the area during the summer months. Some species such as the blue shark are rather common while others such as the dusky and whitetip are probably rare. Many species of sharks are caught during longlining operations for swordfish. The following account provides information on eight species likely to be caught by Canadian swordfish fishermen and for which more information is needed.

Some species of sharks are important commercially and substantial fisheries for them are carried on in various parts of the Atlantic. Since 1960 Norwegian fishermen have fished for porbeagles (some makos are included) in the Canadian area and in 1964 caught and landed nearly 18 million pounds with an estimated value of close to \$3 million. These are marketed as food in Mediterranean countries. Canadian fishermen have even more recently become interested in shark fishing, and landed nearly 40,000 pounds in 1964. The recently recognized presence of makos opens the possibility for a sport fishery for this renowned game fish. On the negative side, sharks are a nuisance and destroy hooked swordfish and tuna.

The biological stations of the Fisheries Research Board of Canada at St. Andrews, N.B., and St. John's, Newfoundland, have been gathering information on sharks for many years. Records of rare or unusual sharks such as dusky, whitetip and mako have been published recently in the Journal



Examining Sharks - CSS Hudson

of the Fisheries Research Board of Canada. The results of studies on 11 species of sharks in Newfoundland waters were published recently in a Bulletin of the Fisheries Research Board of Canada (Distribution of Sharks in the Canadian Atlantic (with Special Reference to Newfoundland Waters) by Wilfred Templeman, Bulletin No. 140, 1963. Price \$1.75).

INTERNATIONAL STUDY

An intensive international study of shark behaviour and migrations is being conducted at the present time. The Fisheries Research Board co-operates and its scientists have been examining and tagging sharks for about four years. Since 1961 more than 400 sharks have been tagged and include such species as blue, porbeagle, mako, dusky and hammerheads. Other biological stations along the Atlantic seaboard also have shark tagging programs.

It is important to know what species of sharks

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are present in the region, what time of year they arrive and leave and whether or not their numbers are increasing. The presence of such fish from southern waters can provide useful clues to changes in water movements. Such changes may pass undetected otherwise. Records of shark occurrence gathered by fishermen are most valuable in assembling information of this type.

Fishermen are especially requested to be on the watch for any tagged sharks among their long-line catches. A wide variety of tags is used, but the most common is a small yellow plastic tube inserted in the back. Tagged fish should be boated, the tags removed and sent to the Biological Station at St. Andrews, N.B., or delivered to a Fishery Officer. A reward of \$10 will be paid for the return of Canadian tags.

Fishermen should be aware that even the so-called harmless sharks can be dangerous. Large sharks thrashing on deck can inflict painful injuries and caution is urged when handling them.

Not all species of sharks are easily identified. When identification is uncertain, the teeth and the dorsal fins maybe removed and sent to St. Andrews. Any request for shark identification should include the total length of the fish, along with a statement of where, when, how and by whom it was caught.

PORBEAGLE (Lamna nasus)

Distinguishing features. Stout, heavy shouldered shark with pointed conical snout; teeth straight with small, pointed cusps on either side; large, triangular first dorsal fin originates over inner angle of pectoral fin; second dorsal fin small, originates over anal fin; upper lobe of caudal fin only slightly larger than lower lobe; 2 keels present on each side of tail, upper one large and lower one small.

Colour. Dark bluish gray or gray above, becoming white below.

Size. Known maximum size to 10 ft and 400 lb or more. The average weight for 41 fish sampled by St. Andrews Biological Station staff was 166 lb (range 38 to 343 lb).

Distribution. Northern coast of Newfoundland to New Jersey - perhaps to South Carolina. Commonest large shark along Atlantic coast of Nova Scotia.

MAKO (Isurus oxyrinchus)

Distinguishing features. Compared with porbeagle, the mako is also stout and heavy shouldered, but slimmer; snout also conical but more pointed; teeth, long, slender, curved and more obvious,



Longlined swordfish are frequently eaten by sharks.

particularly on lower jaw, but with no lateral cusps; first dorsal originates farther back and second dorsal originates farther forward than in porbeagle; a single large keel only on each side of tail.

Colour. Deep brilliant blue on back, becoming silvery on sides and snowy white below.

Size. Maximum length to about 12 ft and more than 1000 lb in weight. Two makos examined by St. Andrews staff were 6 ft 2 in and 7 ft long and weighed 176 and 165 lb, respectively.

Distribution. Tropical and warm temperate waters of Atlantic Ocean, migrates northward in summer at least to Nova Scotia banks.

WHITETIP SHARK (Carcharhinus longimanus)

Distinguishing features. A moderately stout bodied shark with a rounded and flattened snout; teeth in upper jaw broadly triangular; first dorsal fin large with broadly rounded tip, upper lobe of caudal fin much larger than lower, pectoral fin noticeably large; outer portions of first dorsal, caudal and pectoral fins white or grayish white.

Colour. Gray brown or light brown above becoming yellowish or gray white below.

Size. Maximum size to at least 12 ft and pos-

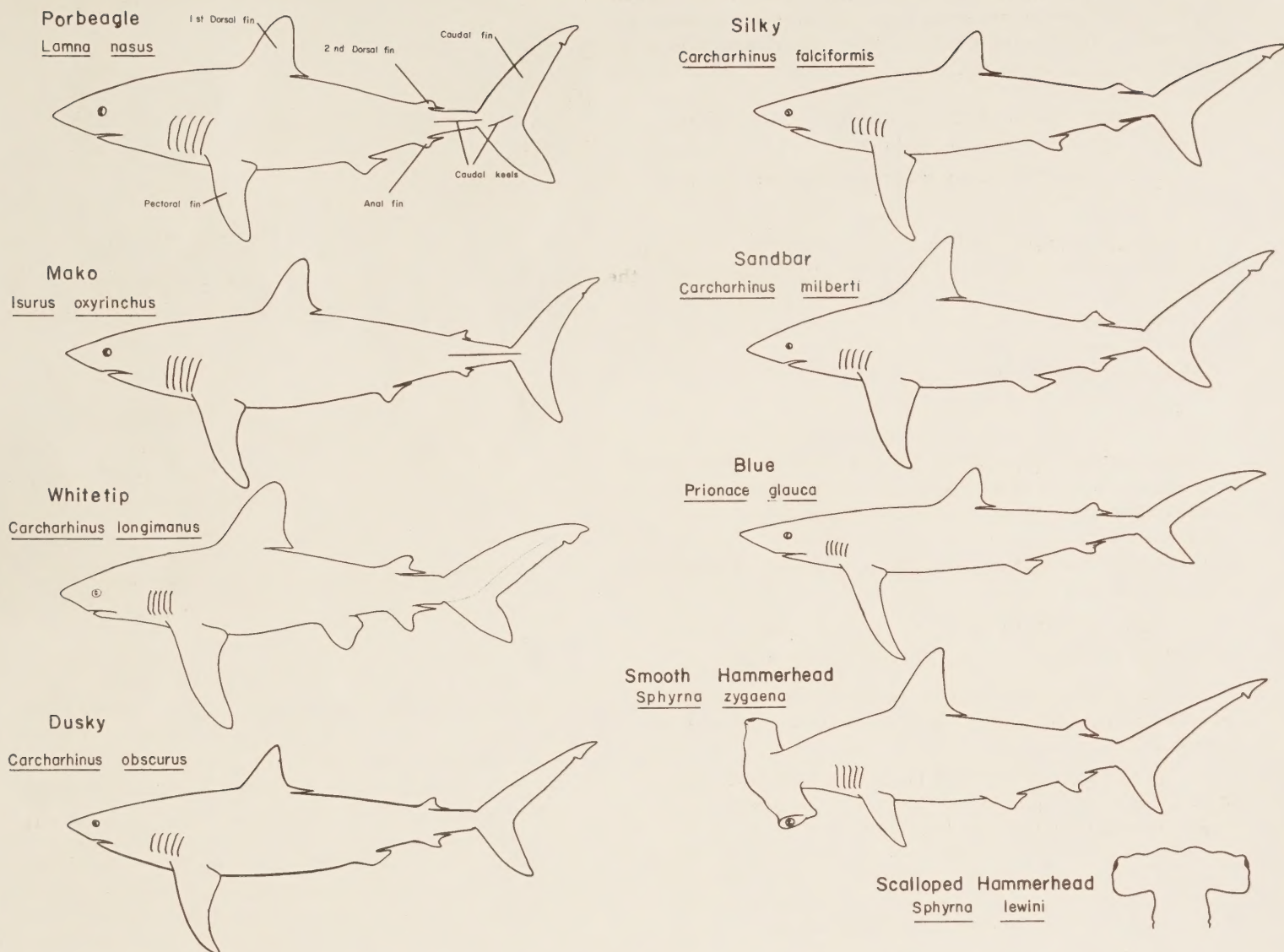


Fig. 1. Outline drawings of eight shark species found off the Atlantic coast of Canada.

sibly larger. A 7 ft 3 in specimen examined by St. Andrews staff weighed 140 lb.

Distribution. Tropical and subtropical Atlantic waters, migrating northward in summer at least to southeast Georges Bank.

DUSKY SHARK (*Carcharhinus obscurus*)

Distinguishing features. A stout, heavy bodied shark with a very broadly rounded and flattened snout; a distinct fleshy ridge along back between dorsal fins; teeth in upper jaw broadly triangular; first dorsal fin moderately large with rounded tip, originates behind inner angle of pectoral fin; height of first dorsal less than 10% of fish length; upper lobe of caudal fin much larger than lower.

Colour. Dark gray to olive brown above, becoming white below.

Size. Maximum size to 11 ft 8 in. Four specimens examined by St. Andrews staff ranged from 10 ft 2 in. to 10 ft 10 in. in length and from 389 to 460 lb in weight.

Distribution. Although common in waters off the United States from Cape Cod southwards, the dusky shark has rarely been reported north of Cape Cod.

SILKY SHARK (*Carcharhinus falciformis*)

Distinguishing features. Similar to dusky shark, but slimmer; snout as flattened but not as broad; distinct fleshy ridge along back; broadly triangular teeth in upper jaw; first dorsal fin size, shape

and position as in dusky; second dorsal fin low and long; length of free rear part of second dorsal fin more than twice its vertical height (in dusky the length of the free part is twice or less than twice the fin height); skin much smoother than in dusky when rubbed toward head.

Colour. Dark gray to olive brown above, becoming white below, as in dusky.

Size. Smaller than dusky, maximum size to about 10 ft.

Distribution. Common in tropical Atlantic waters, occurring northward to Cape Cod in summer.

BROWN or SANDBAR SHARK (Carcharhinus milberti)

Distinguishing features. A stouter and heavier bodied shark than either the dusky or silky; snout, dorsal ridge, teeth and caudal fin similar to dusky; first dorsal fin larger (its height greater than 10% fish length) and inserted farther forward than in dusky or silky.

Colour. Dark gray to olive brown above, becoming white below, as for dusky and silky.

Size. Smaller than either dusky or silky. Maximum size to about 7 ft 10 in and a weight of about 200 lb.

Distribution. Said to be common in New York-New Jersey coastal waters, but no confirmed records north of Cape Cod.

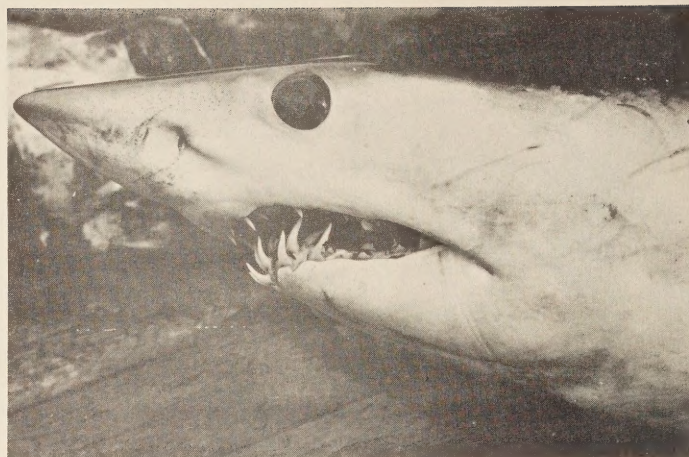
BLUE SHARK (Prionace glauca)

Distinguishing features. A long, slender-bodied shark with a pointed snout; teeth in upper jaw broad-based and shaped like a crooked triangle; first dorsal fin of moderate size, located midway between pectoral and pelvic fins; upper lobe of caudal fin distinctly larger than lower lobe; pectoral fin very long and sickle-shaped.

Colour. Strikingly dark indigo blue or gray blue above, becoming white or gray-white below.

Size. Said to reach a maximum length of 15-20 ft. Maximum size of 166 specimens examined by St. Andrews staff was a male 10 ft long weighing 350 lb.

Distribution. The most numerous of the large oceanic sharks; found throughout the world in tropical



A Mako Shark.

and temperate seas. Northward to Grand Bank in summer. Canadian records extend from August to October. Reported occurrences earlier than August are in doubt.

SMOOTH HAMMERHEAD (Sphyrna zygaena)

Distinguishing features. The characteristic head shape of the hammerheads makes them easy to distinguish from other sharks. One and possibly two species (smooth and scalloped) occur off the Canadian coast. Fishermen longlining farther south may encounter two additional species (bonnethead and great hammerhead).

Both the smooth and the scalloped hammerheads are deep bodied, somewhat flattened side to side; first dorsal fin triangular and of moderate size; second dorsal fin located over anal fin; upper lobe of caudal fin much larger than lower lobe; pectoral fin noticeably small.

The smooth hammerhead can be distinguished from the scalloped hammerhead since the front outline of the head is rounded whereas the scalloped has a distinct central indentation. (The frontal outline of the head of the great hammerhead is almost straight, while that of the bonnethead is shovel-shaped.)

Colour. Deep olive or brownish gray above, becoming grayish white below.

Size. Maximum size 12 to 13 ft and about 900 lb.

Distribution. Common in warm temperate and tropical waters of the Atlantic, occurring northward in summer to New England and rarely to Nova Scotia.